
The Giant Planet Satellite Exospheres

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Abstract Text:

Exospheres are relatively common in the outer solar system among the moons of the gas giant planets. They span the range from very tenuous, surface-bounded exospheres (e.g., Rhea, Dione) to quite robust exospheres with exobase above the surface (e.g., Io, Triton), and include many intermediate cases (e.g., Europa, Ganymede, Enceladus). The exospheres of these moons exhibit an interesting variety of sources, from surface sputtering, to frost sublimation, to active plumes, and also well illustrate another common characteristic of the outer planet satellite exospheres, namely, that the primary species often exists both as a gas in atmosphere, and a condensate (frost or ice) on the surface. As described by Yelle et al. (1995) for Triton, "The interchange of matter between gas and solid phases on these bodies has profound effects on the physical state of the surface and the structure of the atmosphere." A brief overview of the exospheres of the outer planet satellites will be presented, including an inter-comparison of these satellites exospheres with each other, and with the exospheres of the Moon and Mercury.

Session Selection: Surface Boundary Exospheres: Comparing the Moon, Mercury, and Much More

Title: The Giant Planet Satellite Exospheres

Preferred Presentation Format: Assigned by Program Committee (Oral or Poster)

Invited 1

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